

WHAT IS CLAIMED IS:

5 1. A signal processing circuit outputting an output signal corresponding to a pulse width of an input pulse signal, the circuit comprising:

10 integrated means for integrating pulse widths of said input pulse signal for a predetermined period of time, each of the pulse widths having one of polarities; and

15 outputting means for outputting the output signal corresponding to said pulse widths integrated by said integrating means.

20 2. The signal processing circuit as claimed in claim 1, wherein said integrating means comprises a charging circuit storing a charged voltage according to either of polarities of said input pulse signal; and

25 a sample hold circuit sampling and holding the charged voltage stored according to one of said polarities, during a period of said input pulse signal having the other of said polarities and including no chattering.

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3. The signal processing circuit as claimed in claim 2, wherein said charging circuit includes a first

charge circuit charged with a constant current during a period of said input pulse signal having a positive polarity; and

5 a second charge circuit charged with a constant current during a period of said input pulse signal having a negative polarity,

said sample hold circuit includes a first comparing circuit comparing a charged voltage of said first charge circuit with a reference voltage;

10 a second comparing circuit comparing a charged voltage of said second charge circuit with a reference voltage;

15 a first sample hold circuit sampling and holding said charged voltage of said second charge circuit, based on a comparison result of said first comparing circuit; and

20 a second sample hold circuit sampling and holding said charged voltage of said first charge circuit, based on a comparison result of said second comparing circuit, and

25 said outputting means outputs a voltage sampled and held in said first sample hold circuit, according to said comparison result of said first comparing circuit, and outputs a voltage sampled and held in said second sample hold circuit, according to said comparison result of said second comparing circuit.

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4. The signal processing circuit as claimed in claim 3, wherein said first sample hold circuit includes a first switch circuit switched according to said comparison

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result of said first comparing circuit; and
a first capacitor charged according to said
charged voltage of said second charge circuit, when said
first switch circuit is switched on, and
5 said second sample hold circuit includes a
second switch circuit switched according to said
comparison result of said second comparing circuit; and
a second capacitor charged according to said
charged voltage of said first charge circuit, when said
second switch circuit is switched on.

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15 5. The signal processing circuit as claimed in
claim 3, wherein said first charge circuit includes a
first constant current source outputting the constant
current;
a first charging switch circuit switched on when
20 said input pulse signal has a positive polarity so as to
output said constant current output from said first
constant current source;
a third capacitor charged with said constant
current output from said first charging switch circuit,
25 when said first charging switch circuit is switched on;
and
a first discharging switch circuit switched on
according to said comparison result of said second
comparing circuit so as to discharge said third capacitor,
30 and
said second charge circuit includes a second
constant current source outputting the constant current;
a second charging switch circuit switched on

when said input pulse signal has a negative polarity so as to output said constant current output from said second constant current source;

5 a fourth capacitor charged with said constant current output from said second charging switch circuit, when said second charging switch circuit is switched on; and

10 a second discharging switch circuit switched on according to said comparison result of said first comparing circuit so as to discharge said fourth capacitor.

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15 6. The signal processing circuit as claimed in claim 4, wherein said first charge circuit includes a first constant current source outputting the constant current;

20 a first charging switch circuit switched on when said input pulse signal has a positive polarity so as to output said constant current output from said first constant current source;

25 a third capacitor charged with said constant current output from said first charging switch circuit, when said first charging switch circuit is switched on; and

30 a first discharging switch circuit switched on according to said comparison result of said second comparing circuit so as to discharge said third capacitor, and

 said second charge circuit includes a second constant current source outputting the constant current;

 a second charging switch circuit switched on

when said input pulse signal has a negative polarity so as to output said constant current output from said second constant current source;

5 a fourth capacitor charged with said constant current output from said second charging switch circuit, when said second charging switch circuit is switched on; and

10 a second discharging switch circuit switched on according to said comparison result of said first comparing circuit so as to discharge said fourth capacitor.

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15 7. The signal processing circuit as claimed in claim 2, wherein said charging circuit includes a constant current source generating a constant current;

20 a first charge element charged with said constant current;

25 a second charge element charged with said constant current; and

25 a switch switched according to said input pulse signal so as to supply said first charge element with said constant current generated by said constant current source when said input pulse signal has the one of said polarities, and to supply said second charge element with said constant current generated by said constant current source when said input pulse signal has the other of said polarities.

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8. The signal processing circuit as claimed in
claim 2, wherein said outputting means comprises an output
circuit outputting a voltage sampled and held in said
sample hold circuit as the output signal.

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9. The signal processing circuit as claimed in
10 claim 3, wherein said outputting means comprises an output
circuit outputting the voltage sampled and held in one of
said first sample hold circuit and said second sample hold
circuit, as the output signal.

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10. The signal processing circuit as claimed in
claim 4, wherein said outputting means comprises an output
20 circuit outputting the voltage sampled and held in one of
said first sample hold circuit and said second sample hold
circuit, as the output signal.

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11. The signal processing circuit as claimed in
claim 5, wherein said outputting means comprises an output
circuit outputting the voltage sampled and held in one of
30 said first sample hold circuit and said second sample hold
circuit, as the output signal.

12. The signal processing circuit as claimed in
claim 6, wherein said outputting means comprises an output
circuit outputting the voltage sampled and held in one of
said first sample hold circuit and said second sample hold
5 circuit, as the output signal.

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10 13. The signal processing circuit as claimed in
claim 7, wherein said outputting means comprises an output
circuit outputting a voltage sampled and held in said
sample hold circuit as the output signal.

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14. The signal processing circuit as claimed in
claim 9, wherein said output circuit includes a switch
20 circuit selectively outputting either of said voltage
sampled and held in said first sample hold circuit and
said voltage sampled and held in said second sample hold
circuit; and

a switch control circuit switching said switch
25 circuit so as to select said voltage sampled and held in
said first sample hold circuit according to said
comparison result of said first comparing circuit, and to
select said voltage sampled and held in said second sample
hold circuit according to said comparison result of said
30 second comparing circuit.

15. The signal processing circuit as claimed in
claim 10, wherein said output circuit includes a switch
circuit selectively outputting either of said voltage
sampled and held in said first sample hold circuit and
5 said voltage sampled and held in said second sample hold
circuit; and

a switch control circuit switching said switch
circuit so as to select said voltage sampled and held in
said first sample hold circuit according to said
10 comparison result of said first comparing circuit, and to
select said voltage sampled and held in said second sample
hold circuit according to said comparison result of said
second comparing circuit.

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16. The signal processing circuit as claimed in
claim 11, wherein said output circuit includes a switch
20 circuit selectively outputting either of said voltage
sampled and held in said first sample hold circuit and
said voltage sampled and held in said second sample hold
circuit; and

a switch control circuit switching said switch
25 circuit so as to select said voltage sampled and held in
said first sample hold circuit according to said
comparison result of said first comparing circuit, and to
select said voltage sampled and held in said second sample
hold circuit according to said comparison result of said
30 second comparing circuit.

17. The signal processing circuit as claimed in
claim 12, wherein said output circuit includes a switch
circuit selectively outputting either of said voltage
sampled and held in said first sample hold circuit and
5 said voltage sampled and held in said second sample hold
circuit; and

a switch control circuit switching said switch
circuit so as to select said voltage sampled and held in
said first sample hold circuit according to said
10 comparison result of said first comparing circuit, and to
select said voltage sampled and held in said second sample
hold circuit according to said comparison result of said
second comparing circuit.

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18. A signal processing method for outputting
an output signal corresponding to a pulse width of an
20 input pulse signal, the method comprising:

the integrating step of integrating pulse widths
of said input pulse signal for a predetermined period of
time, each of the pulse widths having at least one of
polarities; and

25 the outputting step of outputting the output
signal corresponding to said pulse widths integrated in
said integrating step.